TERIDIAN SEMICONDUCTOR CORP.

Simplifying System Integration™

73M1866B
Keychain Demo Board User Manual

November 17, 2008
Rev. 1.0
UM_1866B_023

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1 Introduction

The 73M1866B Keychain Demo Board is intended for use in target applications where it is desired to "blue wire" the demo board into the system that is will be used with. The active circuitry is identical to the 73M1966B Standard Demo Board other than not having the connector for the GUI interface cable. Since there is not a connector to attach the GUI cable present on this board, the cable and GUI software are not included when the 73M1866B Keychain Demo Board is ordered.

1.1 Package Contents

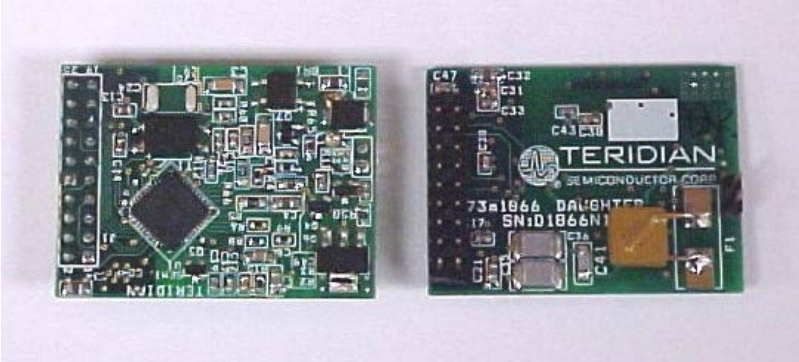

Figure 1: 73M1866B Keychain Demo Board

The 73M1866B Keychain Demo Board Kit includes:

- A 73M1866B Keychain Demo Board (Rev. D5)
- A CD containing the following documents:
  - *73M1866B/73M1966B Keychain Demo Board User Manual (this document)*
  - *73M1866B/73M1966B Data Sheet*
  - *73M1866B/73M1966B PCM Connectivity*
  - *73M1866B/73M1966B Layout Guidelines*
  - *73M1x66 Worldwide Design Guide*

1.2 Safety and ESD Notes

Connecting live voltages to the Keychain Demo Board system will result in potentially hazardous voltages on the boards.

Extreme caution should be taken when handling the Keychain Demo Board after connection to live voltages!

The Keychain Demo Board is ESD sensitive! ESD precautions should be taken when handling this board!

2 73M1866B Keychain Board Schematic

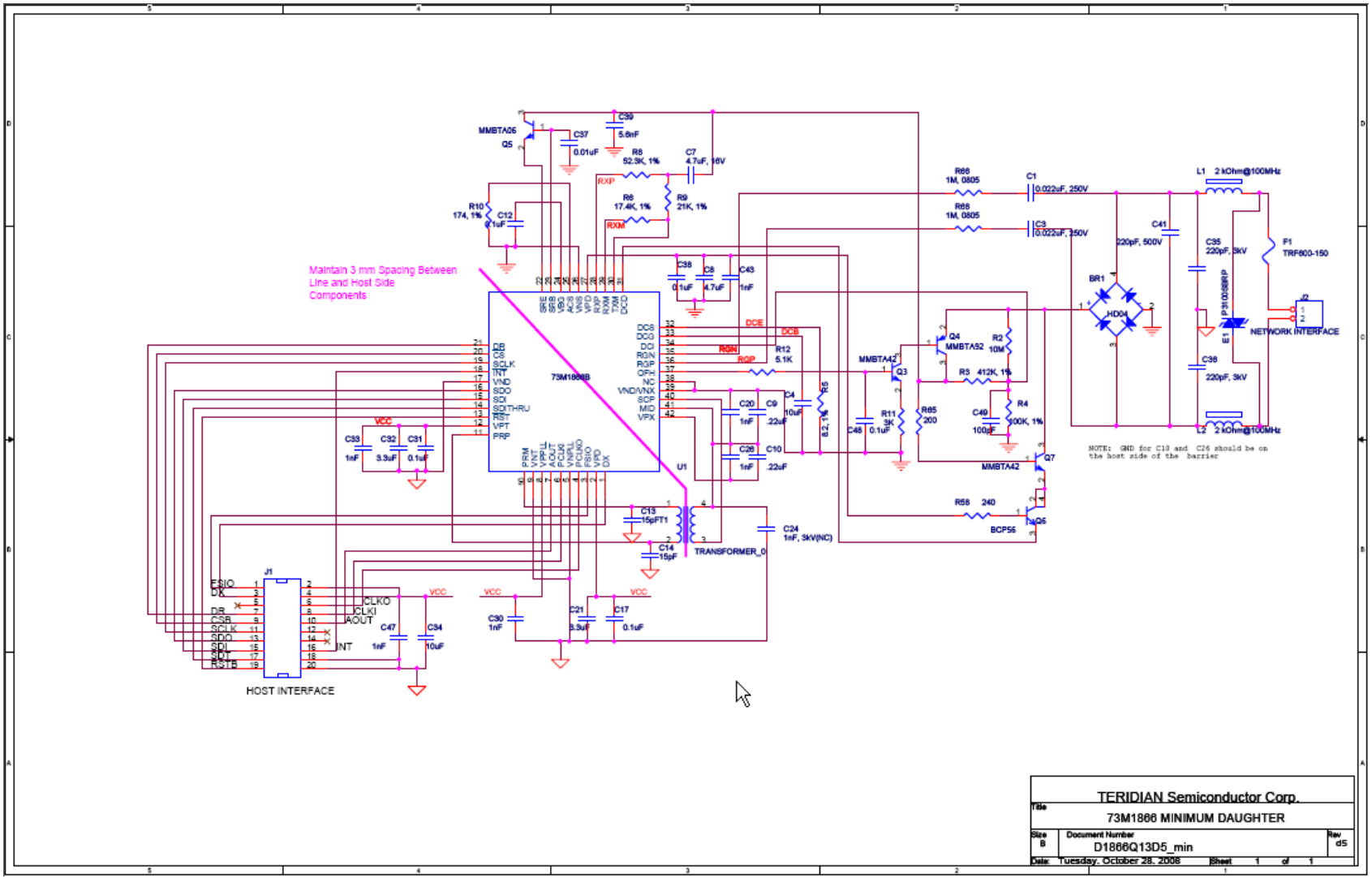

Figure 2: 73M1866 Keychain Demo Board Schematic

2.1 73M1866B Keychain Demo Board PCB Layout

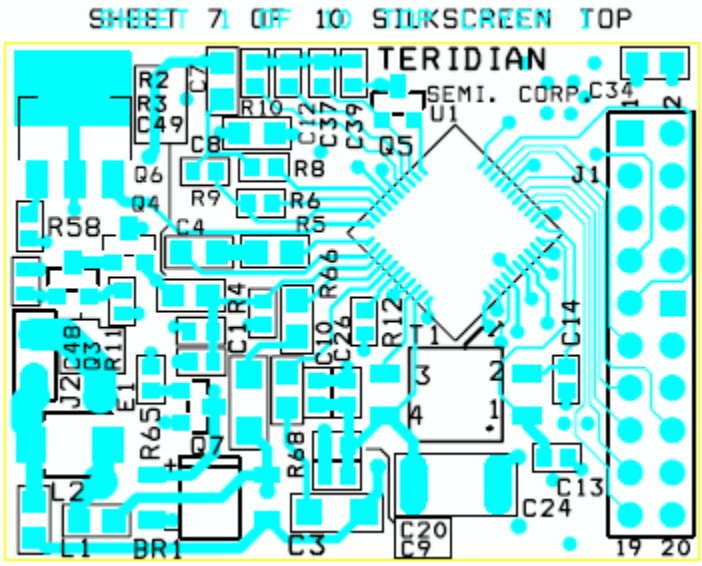

Figure 3: 73M1866B Keychain Demo Board Top Layer

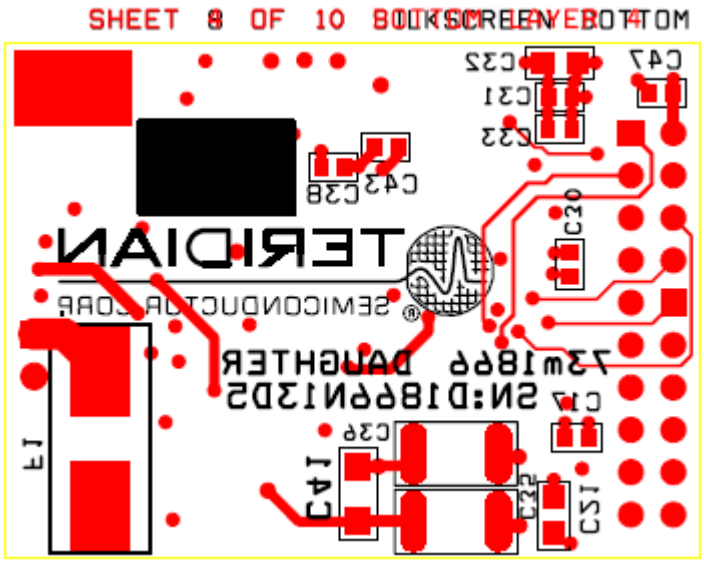

Figure 4: 73M1866B Keychain Demo Board Bottom Layer

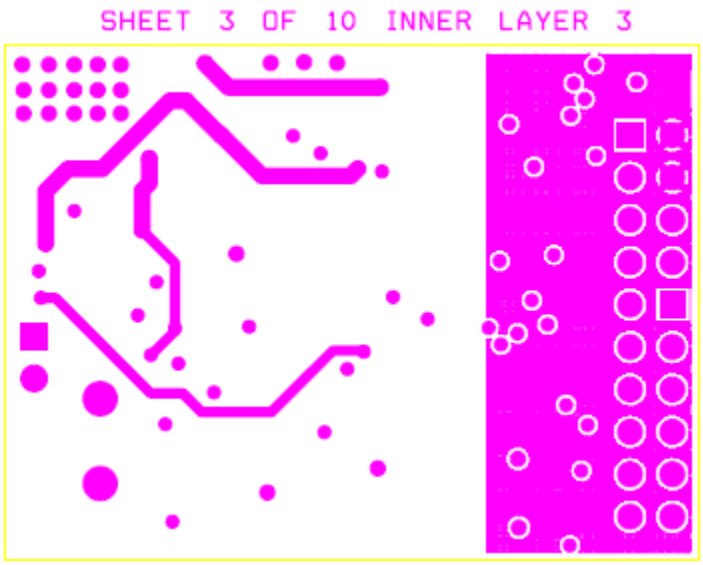

Figure 5: 73M1866B Keychain Demo Board Power Inner Layer

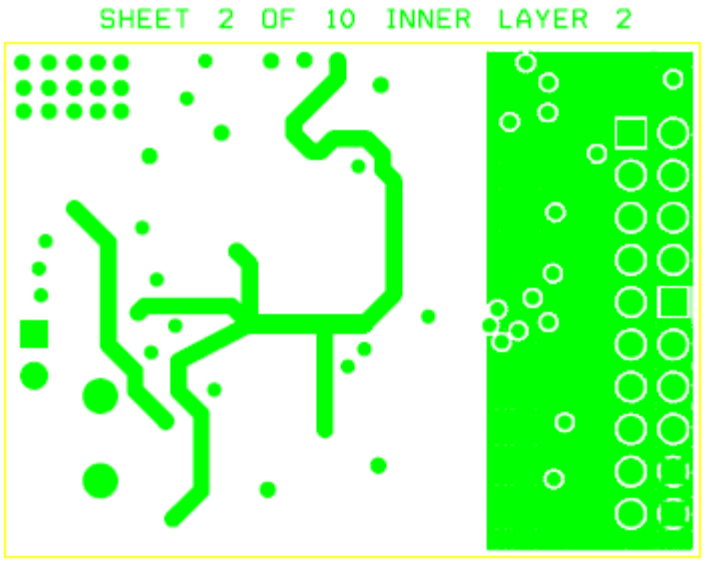

Figure 6: 73M1866B Keychain Demo Board Ground Inner Layer

2.2 Bill of Materials

Table 1 provides the bill of materials for the 73M1866B Keychain Demo Board schematic provided in Figure 2.

Table 1: 73M1866B Keychain Demo Board Bill of Materials

Qty	Reference	Part Description	Source	Example MFR P/N
1	BR1	HD04 rectifier bridge, 0.8A, 400V	Diodes Inc.	HD04-T
2	C1, C3	0.022µF 200V, X7R, 1206	Panasonic	ECJ-3FB2D223K
1	C4	10µF 6.3V, tantalum, 0805	AVX, Panasonic	TCP0J106M8RA
1	C7	4.7µF 25V, X5R, 0805	AVX, Panasonic	08053D475KAT2A
1	C8	4.7uF 6.3V, tantalum, 0805	Rohm	TCP0J475M8R
2	C9, C10	0.22µF 16V, X7R, ceramic, 0603	Panasonic	C0603C224K8RACTU
4	C12,C17,C31, C38, C48	0.1µF 16V, X7R, ceramic, 0603	Panasonic, Kemet	C0603C104K8RACTU
2	C13, C14	15pF 50V, ceramic, 0603	Panasonic	ECJ-1VC1H150J
5	C20, C26, C30, C33, C43	1nF 10V, X7R, ceramic, 0603	Panasonic	C0603C102K8RACTU
2	C21, C45	3.3µF 6.3V, tantalum, 0805	Rohm	TCP0J335M8R
1	C37	0.01µF 50V, X7R, ceramic, 0603	AVX, Panasonic	06035C103KAT2A
1	C39	5.6nF 50V, X7R, ±10% ceramic, 0603	Panasonic	ECJ-1VB1H562K
1	C49	100pF 50V, ceramic, 0603	Taiyo Yuden	UMK107CH101JZ-T
1	Q5	MMBTA06, NPN 80 V transistor SOT23	Diodes, Fairchild, Central, On Semi	MMBTA06LT1G
1	Q4	MMBTA92, PNP 300 V transistor SOT23	Diodes, Fairchild, Central, On Semi	MMBTA92LT1G
2	Q3, Q7	MMBTA42, NPN 300 V transistor SOT23	Diodes, Fairchild, Central, On Semi	MMBTA42LT1G
1	Q6	NPN 80 V transistor SOT223	Fairchild, On Semi	BCP56
1	R2	10M, 5%, 1/8W resistor 0805	Yageo	RC0805JR-0710ML
1	R3	412K, 1%, 1/10W resistor 0603	Yageo	RC0603FR-07412KL
1	R4	100K, 1%, 1/10W resistor 0603	Yageo	RC0603FR-07100KL
1	R5	8.2, 5%, 1/8W resistor 0805	Yageo	RC0805JR-078R2L
1	R6	17.4K, 1%, 1/10W resistor 0603	Yageo	RC0603FR-0717K4L
1	R8	52.3K, 1%, 1/10W resistor 0603	Yageo	RC0603FR-0752K3L
1	R9	21K, 1%, 1/10W resistor 0603	Yageo	RC0603FR-0721KL
1	R10	174, 1%, 1/10W resistor 0603	Yageo	RC0603FR-07174RL
1	R11	3K, 5%, 1/10W resistor 0603	Yageo	RC0603JR-073K0L
1	R12	5.1 K, 5%, 1/10W resistor 0603	Yageo	RC0603JR-075K1L
1	R58	240, 5%, 1/10W resistor 0603	Yageo	RC0603JR-07240RL
1	R65	200, 5%, 1/10W resistor 0603	Yageo	RC0603JR-07200RL
2	R66, R68	1 M, 5%, 1/8W resistor 0805	Yageo	RC0603JR-071ML
1	T1	Pulse transformer	Sumida UMEC Midcom	ESMIT 4180 TG-UTB01543S 750110001

3 Connectors

This section describes the 73M1866B Keychain Demo Board connectors. All the digital signals and power supply connections are made through a 20-pin header connector. The audio monitor is also brought out on this connector. Table 2 describes the pins for the J1 connector. For convenience, most digital signals are grouped with the PCM signals on the odd pins from pin 1 to pin 7, and the PCM CLKI pin is on pin 8. The SPI signals can be found on the odd pins 9 through 17. Reset is on pin 19. The interrupt output is on pin 16. There are two power pins on pins 2 and 4 and two ground pins on pins 18 and 20. The audio monitor output can be found on pin 10. There is also a CLKO pin that can be used for the rare case where the 73M1866B is used in the master mode.

Table 2: J1 Connector Pins

Pin	Pin Name	Function	Pin	Pin Name	Function
1	FSIO	PCM Bidirectional Frame Sync	2	VCC	3.3 V power in
3	DX	PCM Receive Digital Data Output	4	VCC	3.3 V power in
5	NC		6	CLKO	PCM Highway Clock Output
7	DR	PCM Transmit Digital Data Input	8	CLKI	PCM Highway Clock Input
9	CSB	Chip Select - low true	10	AUDIO	Audio output for speaker
11	SCLK	SPI Clock	12	NC	
13	SDO	Serial Control Data Out	14	NC	
15	SDI	Serial Control Data In	16	INTB	Interrupt Output - low true
17	SDT	Serial Data Thru – used in Daisy Chain Mode	18	GND	Ground
19	RSTB	Reset - low true input	20	GND	Ground

Table 2 describes the J2 connector pins. These are the bi-directional PSTN network connections that pass the audio signals to and from the FXO.

Table 3: J2 Pin Descriptions

Pin	Name	Function
1	TIP	Bidirectional Analog Signaling
2	RING	Bidirectional Analog Signaling

The signals on the TIP and RING pins should also have a DC current that would normally come from the PSTN. This current will usually be in the range of 20 to 100 mA, but typically about 40 mA. This current is necessary for the FXO to operate normally. The FXO will not operate if the current drops below approximately 13 mA.

4 Connecting the Keychain Demo Board into an Existing System

The 73M1866B Keychain Demo Board is designed to be easily connected to an existing system that has access to a PCM and SPI interface. Table 2 provides the pin and signal names. Further detail is provided in the *73M1866B/1966B Data Sheet* (FDS_1x66B_001). If connectivity between the Keychain Demo Board and the system is provided by 'blue-wire', we recommend that 30 AWG wire be used as a minimum and that the maximum length of these wires should not exceed 8 inches (20 cm). It is also recommended that the ground have at least two 30 AWG wires connecting the 73M1866B Keychain Demo Board to the host board.

Once connected, the user should check for the integrity of appropriate clock and control signals. Ensure the signals have minimal over- and under-shoot on the signal transitions. Consult the *73M1866B/1966B Data Sheet* for information on the signal timing and ensure the host SPI conforms to these requirements.

In order for the 73M1866B Keychain Demo Board to operate correctly it needs to be configured by software. Teridian provided Reference Driver Software and Linux based Command Line application can be used to configure and control the 73M1866B. Contact Teridian Sales for more information on the available software.

5 Ordering Information

Table 4 lists the order numbers and packaging marks used to identify 73M1966B and 73M1866B Demo Boards.

Table 4: Order Numbers and Packaging Marks

Part Description	Order Number	Packaging Mark
73M1966B 20-Pin TSSOP Motherboard and Standard Demo Board	73M1966B-EVM	73M1916-M 73M1906B
73M1966B 20-Pin TSSOP Standard Demo Board	73M1966B-DB	73M1966B-IM
73M1866B 20-Pin TSSOP Keychain Demo Board	73M1866B-Keychain	

6 Related Documentation

The following 73M1866B documents are available from Teridian Semiconductor Corporation:

73M1866B/73M1966B Data Sheet
73M1866B/73M1966B Layout Guidelines
73M1866B/73M1966B PCM Connectivity
73M1866B/73M1966B Reference Driver User Guide
73M1x66 Worldwide Design Guide

7 Contact Information

For more information about Teridian Semiconductor products or to check the availability of the 73M1866B, contact us at:

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Revision History

Revision	Date	Description
1.0	11/17/2008	First publication.

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